CONSERVATION PRACTICE STANDARD

STRIPCROPPING
(Acres)
CODE 585

DEFINITION

Growing row crops, forages, small grains, or fallow in a systematic arrangement of equal width strips across a field.

PURPOSES

To reduce soil erosion from water and to reduce transport of sediment and other water-borne contaminants

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on cropland or other land where crops are grown.

CRITERIA

General Criteria Applicable to All Purposes

Number of Strips. A stripcropping system shall consist of two or more strips.

Alignment of Tillage and Planting Operations. All tillage and planting operations will follow the strip line established.

Vegetative Cover. Vegetation in a stripcropping arrangement consists of crops and/or forages grown in a planned rotation.

No two adjacent strips shall be in an erosion-susceptible condition at the same time during the year. However, two adjacent strips may be in erosion-resistant cover at the same time.

Erosion-resistant strips shall be crops or crop residues that provide the needed protective cover during those periods when erosion is expected to occur.

Acceptable protective cover includes a growing crop, including grasses, legumes, or grass-legume mixtures, standing stubble, residue with enough surface cover to provide protection, or surface roughness sufficient to provide protection.

Width of Strips. The required width of strips shall be determined using currently approved erosion prediction technologies to achieve the planned erosion reduction.

Minimum Row Grade

Row grades for soils with slow to very slow infiltration rates (soil hydrologic groups C or D), or for crops sensitive to ponded water conditions for periods of less than 48 hours, shall be designed with positive row drainage of not less than 0.2 percent on slopes where ponding is a concern.

Maximum Row Grade

The row grade shall be aligned as close to the contour as possible but be practical to operate equipment. The maximum row grade shall not exceed 5% or 0.50 times the up and down hill slope percentage or the RUSLE slope

percentage which ever is less. Deviation in one direction should not exceed 200 feet.
On fields where row crops and tillage are part of the cropping system, establish field borders, permanent sod, or use no-till planting on headlands where maximum row grade is exceeded and slope length is greater than 150 feet.

Strip Width
Strip widths shall not exceed 50 percent of the RUSLE slope length or 150 feet, whichever is less. All strips in a layout will generally be the same width unless there are significant changes in slope grade. Widths must be adjusted to accommodate a practical layout or widths must be modified to meet producer needs. Consider sprayer and planter widths when determining strip width.

Correction strips will vary in width but shall be wide enough to accommodate planting or sprayer equipment operation widths. Strip widths are also discussed in the following section on alignment.

Alignment of Strips
Strips established on hill slopes will be parallel as long as row grade criteria are met. When row grade criteria cannot be met, correction strips should be used to reestablish row grade criteria. Correction strips will be uneven in width and should be kept large enough to be efficiently farmed as a separate field. The size should meet the producers' objectives.

On rolling hill slopes where correction strips may be needed frequently (every 2 or 3 strips) it may be more desirable to establish each strip with its own contour boundary. By doing this each field may have some short rows but overall the fields will be larger and more farmable. This decision should be based on the producer's preference since both will meet row grade criteria.

All tillage and planting operations will follow the established strip boundaries.

Where contour row curvature becomes too sharp to keep machinery aligned with rows during field operations, establish sod turn strips as needed.

Grassed waterways established in drainage ways should be kept wide enough to allow equipment to lifted and/or turned to meet the same rows across the drainage way.

Arrangement and Vegetative Condition of Strips
Alternate strips with Cover-Management Conditions 4-7 down the slope with strips of Cover-Management Conditions 1-3). If condition 3 is used at least 50% percent surface residue cover shall be present throughout the crop rotation.

No two adjacent strips shall be in Cover-Management Condition 4-7 at the same time during the year. However, two adjacent strips may be in erosion-resistant cover at the same time.

Cover-Management Conditions are a part of the erosion prediction technology in the Revised Universal Soil Loss Equation, and are as follows:

COVER MANAGEMENT CONDITION	DESCRIPTION
(1) Unharvested Grass is not harvested	Includes established hay and pasture that
(2) Harvested Grass/Legume is harvested	Includes established hay and pasture that
(3) Heavy Cover	No-till into heavy cover with residue levels exceeding 50% or very rough surface condition
(4) Moderate Cover	No-till or mulch till with residue levels of 30-50% or rough surface conditions
(5) Light Cover roughness	Reduced till or other cover condition with less than 30% residue or moderate
(6) Clean Till	Generally moldboard plowed, not finely pulverized. Typical of ground preparation for field crops
(7) Clean Till (finely pulverized)	Generally moldboard finely pulverized. Typical for vegetable crops and some alfalfa seedings. Very smooth surface

Benefits of stripcropping increase as the difference in cover conditions in alternate strips increases.

Minimum Ridge Height

Ridge height will be determined considering producer management techniques and on site conditions and will be given credit using current RUSLE (Revised Universal Soil Loss Equation) erosion prediction technology.

Due to management techniques and weathering throughout the year, ridge height is generally quite variable. The ridge height used for calculating effectiveness should be best representative of the conditions during the time of the year when erosion potential is the highest.

This minimum ridge height shall not be less than 0.5 inches. This minimum ridge height is not required for stands of close-grown crops, such as grasses, legumes and small grains or when crop residue levels of 50% or more are generally maintained after planting.

Critical Slope Length

Contour stripcropping is not considered effective when used on slopes longer than 1.5 times the critical slope length for contour farming.

The computation of critical slope length shall be determined using RUSLE erosion prediction technology.

Slope lengths can be reduced using terraces or diversions, or may be modified when crop residue levels are maintained in excess of 50% such as when crop sequences are completely no-tilled.

Stable Outlets

Concentrated flows from contour stripcropping shall be handled using grassed waterways, field borders and other stable outlets or areas as appropriate.

Headlands/End Rows

On fields where row crops and tillage are a part of the rotation establish field borders or otherwise establish permanent sod where row grades exceed row grade criteria and slope lengths exceed 150 feet.

Additional Criteria to Reduce Transport of Sediment and Other Water-borne Contaminants

Arrangement and Vegetative Condition of Strips

Crop strips with Cover-Management Condition 3-5 shall be alternated with crop strips with Cover-Management Condition 1-2.

No two adjacent strips shall be in Cover-Management condition 3-5 at the same time. However, two adjacent strips may be in Cover-Management Condition 1-2 at the same time.

CONSIDERATIONS

To avoid wide fluctuations in acreage of different crops from year to year, fields having identical crop rotations can be set up that are nearly equal in size with offset years to start the rotation. Even-year rotation lengths are preferable to odd-year rotation lengths for ease of planning crop acres.

Contour stripcropping widths may impact ephemeral gully erosion. Strip width may be adjusted downward as appropriate to reduce ephemeral gully erosion. Refer to the following guidelines if this adjustment is made.

STRIP WIDTH GUIDELINES

Ephemeral Gully Control

Percent Slope	Strip Width in Feet
1 to 2	120
3 to 8	100
9 to 12	90
13 to 16	80
17 to 20	60
21 to 25	50

Prior to layout, consider obstruction removal and changes in field boundaries to improve the effectiveness of the practice and the ease of farming, especially to minimize short rows.

The width of correction areas, and the distance between baselines, should generally be adjusted for planting or sprayer equipment operation widths.

Prior to layout, determine locations where baselines should be established to assure that full strip widths can pass obstructions or ridge saddles or other locations that may impact effectiveness and practicality of the layout.

Whenever possible, run the strip boundary parallel with fence lines or other barriers, as long as row gradient criteria are met. Account for access road widths when they must cross the field, and adjust the strip boundary on either side accordingly.

When this practice is used in combination with diversions or terraces, establish parallel strip boundaries wherever possible if meeting row grade criteria. Contour stripcropping may need to be used in combination with other conservation practices to meet the goals of the conservation management system.

PLANS AND SPECIFICATIONS

Specifications for installation and maintenance of Contour Stripcropping shall be prepared according to the Criteria, Considerations, and

Operations and Maintenance described in this standard, and shall be recorded using: narrative statements in the conservation plan, as a part of RUSLE
documentation, approved specification sheets, job sheets or other acceptable documentation.

OPERATION AND MAINTENANCE

Conduct all farming operations parallel to strip boundaries.

On fields where row crops and tillage are a part of the rotation establish field borders or otherwise establish permanent sod where end row grades exceed row grade criteria.
On fields where row crops and tillage are a part of the rotation plant odd areas and short rows to maximize adherence to the contour.

Substitution of crops due to crop failure or loss of stand is acceptable as long as two strips with Cover- Management Condition 4-7 are not side by side.

When headlands or end rows are in permanent cover, renovate as needed to retain the minimum 65% cover. No-till planting is recommended, but if tillage is used it should be limited to the minimum needed to reestablish the cover. Full width turning area should be retained.

Maintain stripcropping boundaries as accurately as possible by using specific spacing for planting and tillage from the actual location of the boundary.

REFERENCES

1. Soil Loss Prediction, Section 2 or the PATG, RUSLE (Revised Universal Soil Loss Equation), USDA-NRCS, Harrisburg, Pa.
2. Predicting Soil Erosion by Water, A Guide to Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE). 1997 USDA Agricultural Research Service, Agricultural Handbook No. 703

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the
Natural Resources Conservation Service.